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That the authors of the list of "Mosses of Alaska" failed to appreciate so remarkable a species, one of the most interesting collected by the party, indeed, seems rather singular, since they have rather gone out of the way in an attempt to name slight variations that often might far better be included with the species.

R. S. WILLIAMS,  
New York Botanical Garden.

## THE MOSSES OF ALASKA.

By J. CARDOT AND I. THERIOT.

From "Papers from the Harriman Alaska Expedition."

CONTINUED.

The new species and varieties described and figured in the above article (see THE BRYOLOGIST for March, 1903,) are: *Anoetangium compactum Alaskanum*, *Cynodontium Treleasei*, *C. polycarpum Alaskanum*, *Dichodontium pelucidum Kodiakanum*, *Dicranella heteromalla latinervis*, *Dicranum subflagellare*, *Pottia Heimii Beringiana*, *Trichostomum cuspidatissimum*, *T. Sitkanum*, *Barbula brachypoda*, *B. Saundersii*, *B. Treleasei*, *B. rigens*, *Racomitrium sudeticum Alaskanum*, *R. cyclodictyon*, *Ulota Alaskana*, *U. crispa subcalvescens*, *Orthotrichum fenestratum*, *Entosthodon spathalifolius*, *Webera pseudogracilis*, *Bryum ateleostomum*, *B. Treleasei*, *B. Agattuense*, *B. mucronigerum*, *B. cylindrico-arcuatum*, *C. Laurentianum*, *B. leptodictyon*, *B. heterogynum*, *B. pseudostirtoni*, *B. Harrimani*, *B. Duvalii obtusatum*, *B. drepanocarpum*, *Mnium punctatum anceps*, *Polytrichum Yukonense*, *Brachythecium Beringianum*, *Plagiothecium fallax*, *Amblystegium serpens Beringianum*, *A. varium Alaskanum*, *Hypnum Treleasei*, *H. uncinatum polare*, *H. sulcatum stenodictyon*, *H. subeugyrium occidentale*, *H. sarmentosum Beringianum*, *H. plesiostramineum*, *Hylocomium triquetrum Beringianum*. *Bryum Agattuense* and *B. mucronigerum*, both elsewhere described (in Rev. Bryol. 1904) are here for the first time figured.

*ANOETANGIUM COMPACTUM ALASKANUM* Card. and Thér.

Distinguished by a more robust habit, leaves more spreading when moist, larger and broader, cells larger (medium 6-9  $\mu$  wide, instead of 4-6  $\mu$ ), areola ion more opaque.

From Port Wells (Trelease, 1832).

*CYNODONTIUM TRELEASEI* Card. and Thér.

Monoicous, somewhat densely cespitose, stems erect, short, 3-4 mm. high, leaves crispate when dry, patent when moist, 2-3 mm. long, suddenly contracted from an oblong base to a long and narrowly subulate, acumination, apex sinuate denticulate, margin plain and entire, costa percurrent lower cells rectangular 2-3: 1, upper irregular, and mostly sub quadrate, opaque and papillose, 9-15  $\mu$  long, 8-9  $\mu$  broad, alar cells larger, subinflated, yellowish; antheridial buds on short branches, inner perichaetial leaves sheathing, long acuminate; capsule on a short pedicel 7-8 mm., cernuous or inclined, shortly ovate, convex, sometimes stramulose, smooth or slightly

striated; operculum long-rostrate with an oblique beak, crenulate at base; annulus distinct, peristome deep purple 0.5 mm. long, strongly papillose, teeth irregularly trifurcate; spores, smooth, 16-18 $\mu$ .

From Port Wells (Trelease, 2268, 2271).

This species is only comparable with *C. polycarpum* Sch., from which it is easily distinguished by its smaller size, its shorter, smooth or hardly striate capsule; its more papillose, longer and brighter purple peristome; its shorter leaves with a thinner subula, and its upper leaf-cells smaller and less distinct.

CYNODONTIUM POLYCARPUM ALASKANUM Card. and Thér.

Differs from the typical form in the leaves more strongly denticulate at apex, margins less widely and less longly revolute, leaf cells smooth, or nearly so, upper a little larger and more distinct (20 x 13 $\mu$  instead of 14 x 11): distinct from variety *laxirete* Dixon in the narrower leaves, and more dense areolation. From *Oncophorus suecico* Arn. and Jens., it differs in having the leaves revolute below, and alar cells indistinct, or nearly so.

From Juneau (Trelease, 2176); Cape Fox (Trelease, 2374); Indian Camp, Yakutat Bay (Brewer and Coe, 645).

The type has been indicated for Alaska by Kellogg and by Lesquereux and James (Manual, p. 58).

DICHODONTIUM PELLUCIDUM KODIAKANUM Card. and Thér.

In size like *D. flavescens* Lindb., 5-8 cm. high; leaves subentire, apex broadly obtuse, somewhat sinuate, scarcely papillose.

From Kodiak (Trelease, 1848).

DICRANELLA HETEROMALLA LATINERVIS Card. and Thér.

Differs from the typical form in having leaves shorter subulate, costa broader, occupying one-third of base.

From Douglas Island (Trelease, 2389).

DICRANUM SUBFLAGELLARE Card. and Thér.

Nearest to *D. flagellare*, differs in the lack of flagellæ, the erect subfalcate leaves, narrower, little flexuose, shorter (2-2.5 mm.), acumen canaliculate, not subtubulose, margins and back subentire, lower cells narrower, upper much smaller, specimens scanty, sterile.

From Kodiak (Trelease, 1899).

POTTIA HEIMII BERINGIANA Card. and Thér.

Differs from the typical form in the shorter leaves, surrounded by a yellowish border; mucronate by the shorter excurrent costa, areolation more opaque, strongly papillose.

From St. Matthew Island (Trelease, 2151 in part).

We found only a few stems of this moss, mixed with *Barbula brachypoda* Card. and Thér., and a Bryum. By the pellucid margin of the leaves, it is nearly related to *P. obtusifolia* C. Müll. (*P. Heimii arctica* Lindb.) but it is easily distinguished from it by its pointed leaves. It also closely resembles *Desmatodon systylioides* Ren. and Card., from Labrador, which is probably also a *Pottia* of the same group, but it differs from this species by its ovate,

shorter and proportionately wider capsule, its longer and more finely beaked lid, its shorter and more briefly acuminate leaves, and finally by its areolation formed of larger and less obscure cells.

TRICHOSTOMUM CUSPIDATISSIMUM Card. and Thér.

Dioicous, compactly caespitose, brownish yellow, stems erect, about 5 cm. high, densely foliate, reddish tomentose; branches numerous, erect; leaves crispate when dry, erect-arcuate when moist, clustered at the apex of the stems and branches, fragile (apex often broken off) from an ovate base gradually long acuminate; 3-3.5 mm. long, 0.45-0.7 wide, margins plane, inflexed above, crenulate with prominent papillæ, costa narrow, 80-90 $\mu$  wide at base, long excurrent into a very acute cuspidate apex, lower cells rectangular 5-6:1, yellowish, upper mostly quadrate, 10-12 $\mu$  wide, opaque, strongly papillose. Sterile.

From Hall Island (Brewer and Coe, 674).

A fine species, easily distinguished from the large forms of *T. mutabile* Bruch, and its variety *cuspidatum* Limpr. (*T. cuspidatum* Sch.), by the form of its leaves, and more particularly by its narrower costa and its upper cells which are much larger and more distinct (10-12 $\mu$  instead of 6-8).

TRICHOSTOMUM SITKANUM Card. and Thér.

Dioicus (?). In somewhat dense tufts, above green, blackish within, covered with earth below stems 2-3 cm. high, little divided, loosely foliate. Leaves soft, cirrate-crispate when dry, patulous when moist, the lower 2.5-3 mm. long, upper longer, 4-4.5 mm. long, linear lanceolate from a long subsheathing base, margins plane and entire, costa quite strong, about 110 $\mu$  wide at base, excurrent into a short, yellowish mucro, cells of the subsheathing base rectangular, hyaline 4-6:1; others quadrate, hexagonal, 12-14 $\mu$  wide, strongly papillose; other parts lacking.

From Sitka (Trelease, 2370).

The aspect, the form of leaves, the looser basal areolation and the upper cells more papillose, easily distinguish this plant from *T. cuspidatissimum* Card. and Thér. It is more closely connected with *T. Bambergeri* Sch., but the latter has the costa shining on the back in a dry state, and the hyaline cells of the base going up along the borders of the leaf, as in *Barbula tortuosa* Web. and Mohr.

BARBULA BRACHYPODA Card. and Thér.

Monoicus, laxly caespitose, green, stems 5-10 mm. high, erect, simple or divided, leaves soft, erect when dry, erect-open when moist, elliptic or subspatulate, 2.5-3 mm. long, 0.6-1 mm. broad, broadly and shortly acuminate, obtuse, subobtuse or acute, margins revolute from base to middle, thence plane and bordered with three or four rows of yellowish cells; costa narrow (50 $\mu$ ), vanishing a little below the apex; areolation smooth, the cells in the lower half very lax, hyaline, rectangular, 66-88  $\times$  about 22 $\mu$ , strongly chloro-phyllous; above, cells irregular roundish-quadrate or very short rectangular, gradually smaller from costa to margin (larger, 25  $\times$  16 $\mu$ : smaller, quadrate 14 $\mu$  wide); antheridial buds below the archegonial; perichætil leaves larger

than the stem leaves, acuminate; inner very narrow; seta short, pale, 5-7 mm. long, 0.2 mm. thick; capsule erect, cylindric, about 2 mm. long, operculum conic equalling one-third the length of the capsule; annulus broad, distinct; peristome papillose, basal membrane short, teeth once or twice twisted; spores smooth, 12-16 $\mu$ .

From St. Matthew Island (Trelease 2151, in part 2166).

This species, which belongs to the section *Cuneifoliae* Sch., is easily distinguished from *B. cuneifolia* Brid. by its leaves revolute below, its longer lower cells, the upper more chlorophyllose with thicker walls, its shorter seta, its broad annulus, etc.

Kindberg has established in *Revue Bryologique*, 1896, p. 22) a *B. subcuneifolia* from Alaska, which, by some characters, seems to be near to our *B. brachypoda*; but his description is so incomplete that we can neither ascertain whether this *B. subcuneifolia* is identical with the plant here described, nor, with still more reason, mention the characters which might distinguish it from the former.

BARBULA SAUNDERSII Card. and Thér.

Dioicus? laxly caespitose, olive-green, stems short, 5-8 mm. high, simple or little divided. Leaves incurved when dry, erect, or erect-open when moist 1.5-2 x 0.8 mm., shortly acuminate, obtuse or shortly mucronate with margins revolute below to two thirds the length of the leaf, concave above, costa strong, nearly the same thickness (0.1 mm.) throughout, strongly prominent at back, percurrent, or rarely somewhat excurrent, areolation smooth, lower cells lax, rectangular, yellowish, 40 x 12 $\mu$ , the next above quadrate, 12 x 13 $\mu$ ; incrassate middle and upper cells minute, 7-8 $\mu$  wide, scarcely distinct: perichætal leaves longer than the stem leaves, erect, incurved when dry, erect-appressed when moist; seta purple, about 10 mm. long, twisted to the left when dry; capsule erect, oblong or subcylindric, 1-1.25 mm. long; operculum very long-conic, equalling the capsule; peristome purple, papillose; basal membrane short, 30 $\mu$  high, teeth once or twice twisted; spores smooth 14-16 $\mu$ .

From Hidden Glacier Inlet, Yakutat Bay (Trelease, 2514).

In habit recalls the smallest forms of *B. unguiculata* Hedw., from which it differs by the shorter and proportionately broader leaves, which are shortly ovate-lanceolate, not or hardly mucronate, etc. By the form of leaves, it is also connected with *B. brachyphylla* Sulliv., but the latter has the stems much longer and the basal areolation of the leaves quite different.

BARBULA TRELEASEI Card. and Thér.

Dioicus? densely caespitose yellowish green; stems 1-2 cm. high, erect, divided; leaves slightly crispate when dry, erect-open when moist, about 1.5 x 0.6 mm., ovate-lanceolate, shortly acuminate, entire, margins revolute from the base; costa strong, percurrent, 80 $\mu$  thick at base; lower leaf cells rectangular, subhyaline, smooth; median and upper minute (8 $\mu$ ), quadrate, strongly papillose, scarcely distinct: perichætal leaves much larger and broader, suddenly contracted, long acuminate, arcuate-spreading when

moist; inner subsheathing, hyaline in the lower half; seta 10–11 mm, long, capsule erect, oblong cylindric. Other parts lacking.

From Juneau (Trelease, 2179, 2181).

This moss has the aspect of a slender *B. fallax* Hedw.; but the texture of the leaf base, form of rectangular subhyaline cells, clearly separate it. On the other hand, it differs from *B. vinealis* Brid. and allied forms by the much shorter leaves.

*BARBULA RIGENS* Card. and Thér.

Reddish, loosely caespitose or intermixed with other mosses; stems slender, erect, rather rigid, divided, 1–2 cm. high, leaves somewhat crispate when dry, erect-open when moist, shortly linear-lanceolate, 1.25 to 1.5 x 0.3 mm., margins entire (somewhat revolute towards the middle); costa strong of nearly the same thickness throughout (56 $\mu$ ). biconvex, percurrent or excurrent into a short mucro; lower leaf cells rectangular, hyaline, smooth for the most part, upper cells opaque, indistinct, round-quadrangle, densely papillose on both sides, median about 11 $\mu$  wide. Other parts lacking.

From Orca (Trelease, 2260; mixed with *Distichium capillaceum* and *Anoetangium compactum*).

This species belongs to the group of *B. rigidula* Mitt., from which it is easily distinguished by its stiff stem and leaves, the latter being shorter and very briefly acuminate and by its much more papillose areolation.

*RHACOMITRIUM SUDETICUM ALASKANUM* Card. and Thér.

A small form with the habit of var. *tenellum* Boul., but with hyaline apex nearly or quite lacking and the costa more distinct.

Hidden Glacier Inlet, Yakutat Bay (Trelease, 2508 in part).

*RHACOMITRIUM CYCLODICTYON* Card. and Thér.

Dioicous? Small, densely caespitose, dark brown, stem depressed, very freely branching erect short, 3–5 mm. long. Leaves when dry suberect, scarcely flexuous, erect open when moist, 1.25 mm. long, by 0.5 mm. broad, mucicous, entire lower margin revolute, costa rather slender, 35–40 $\mu$  wide, vanishing a little below the apex, areolation subequal, a few of the lower cells next the costa rectangular or sublinear, not sinuous, all the others round or shortly ovate, 8–12 $\mu$  wide, marginal cells incrassate, smooth or strangely convex so as stimulate large papillæ. Perichaetial leaves much larger from a sheathing base, gradually long acuminate, erect when moist. Seta short, purple becoming blackish and twisted to the left when dry. Capsule 5 mm. long, erect, narrowly cylindric, 1.5 mm long, by 0.3 thick. Spores minutely granulose, 16–17 $\mu$ . The rest unknown.

From Muir Glacier (Trelease, 2431).

A most remarkable species which cannot be mistaken for any other on account of its characteristic areolation very different from that of all known species of the genus *Rhacomitrium*.

*ULOTA ALASKANA* Card. and Thér.

Differs from the closely allied *U. crispa* Brid. at first sight in its size and more robust habit (stem 2–4 cm. high, freely branching), seta longer

4-6 mm.) lower leaves more narrowly hyaline margined (four or five rows of cells) spores larger (19-23 $\mu$ ) and especially by having the dry capsule dilated at the mouth, never constricted below the mouth.

From Wrangell (Coville and Kearney, 407); Point Gustavus (Coville and Kearney, 774); New Metlakatla (Trelease, 2239); Yakutat Bay (Trelease, 2337); Virgin Bay (Trelease, 2499); Hot Springs (Trelease, 2347).

By the shape of its capsule, dilated at mouth, this species is very distinct from *U. Bruchii* Hornsch. and *U. intermedia* Sch. It cannot be either mistaken for *U. connectens* Kindb., which, according to the author, has a short, hardly emergent seta. *U. camptopoda* Kindb. would appear, according to the description, nearer to *U. Alaskana*, but as Kindberg has recently joined it to *U. connectens*, we need not take it into account. Besides, he gave it the aspect of *U. crispula* Bruch, which does not at all agree with our *U. Alaskana*, characterized by its great size and the length of its seta.

*ULOTA CRISPA SUBCALVESCENS* Card. and Thér.

Capsule short, when moist as in *U. crispula*, but when dry and empty constricted below the mouth as in *U. crispula*. Calyptra hairy only at apex.

Baranof Island (Trelease, 2348 in part).

Two small tufts, mixed with *U. phyllantha* Brid.

*ORTHOTRICHUM FENESTRATUM* Card. and Thér.

Monoicous, in rather loose cushions, dark or blackish-green becoming black within, stems frequently divided, 1-1.5 cm. high. Leaves erect, imbricated when dry and barely spreading when moist, median leaves 3.5 mm. long, by 0.75-1 wide, the upper larger, lanceolate or ovate-lanceolate, acute, margins entire, revolute to near the apex; costa narrow, brownish, vanishing below the apex; the lower leaf cells subhyaline, rectangular, 2-4 times longer than wide, shorter near the margin, walls sinuous, median and upper cells unequal, roundish or short-ovate, 9-12 $\mu$ , walls incrassate; antheridial buds below the archegonial, sessile, perichætal leaves short with rounded apex, ecostate or obsoletely costate, paraphyses filiform; capsule exerted on short seta, 1-2 mm. long, pale yellow, ovate-pyriform, when dry, subglobose, abruptly constricted at the base, when moist, gradually narrowed into a long neck tapering into the seta, smooth or slightly striate when dry, 3 mm. long (with the neck) by 1.5 wide, stomata immersed, the striae are subindistinct composed of yellower and more incrassate, cells; operculum depressed, long beaked, the calyptra conical-campanulate, somewhat plicate, with white hairs at the brown apex; the vaginule without hairs; peristome as far as observed is simple, with eight bigeminate, pale-yellow, granulose teeth, when dry erect or spreading, cancellate and cribose-perforate in the upper half. Spores large for the genus, 24-28 $\mu$ , brown and papillose.

From St. Paul Island (J. M. Macoun).

This moss was distributed as *O. anomalum* Hedw., but it bears no resemblance to that species. It is allied to *O. criosum* C. Muel. from the Chukchi Peninsula, Siberia, chiefly by the shape of the capsule and from the structure of the peristomial teeth, but it differs from it by its larger size and the

leaf-areolation, composed of less incrassate and less papillose cells. In *O. cribosum* the leaf-cells are strongly incrassate and coarsely papillose from the base.

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### OFFERINGS TO CHAPTER MEMBERS.

[To chapter members only—for postage.]

- Mr. Severin Rapp, Sanford, Florida, *Syrrhopodon Floridanus* Sulliv.  
Miss Alice L. Crockett, Camden, Maine. *Plagiothecium elegans* Schimp.  
Mr. J. F. Collins, 468 Hope St., Providence, R. I. *Ulota phyllantha*, Brid.,  
*U. Ludwigii* Brid.  
Mr. J. W. Huntington, Amesbury, Mass. *Pleuridium subulatum* B. & S.,  
*Hypnum Boscii* Schwaegr.  
Miss Mary F. Miller, 1109 M Street, N. W., Washington, D. C. *Barbula unguiculata* Hedw., *Ditrichum virginans* (Sulliv.) Hampe., *Brachythecium plumosum* B. & S.  
Mrs. J. D. Lowe, Noroton, Conn. *Ulota crispula* Brid., *Fissidens taxifolius* Hedw., *Cylindrothecium seductrix* Sulliv.  
Mrs. Carolyn W. Harris, 125 St. Mark's Ave., Brooklyn, N. Y. *Cladonia rangiferina* (L.) Hoffm., *C. rangiferina* (L.) Hoffm. var. *sylvatica* L. *C. rangiferina* (L.) Hoffm.) var. *alpestris* L.

NOTE TO CHAPTER MEMBERS. Please take notice. In order to secure greater uniformity in the writing of labels we will give in future the authority in full as well as name of plant. In matters of nomenclature we endeavor to follow the best usage—this often necessitates one or more cross references to be made on ones own label, at least till such time as the newer name is well fastened in the memory.

Another suggestion we make is that members indicate on their list sent to the Secretary, the geographical location of the various species so that an intelligent choice may be made by those requesting specimens. When the same moss is offered again and again it would often save sending for it from a locality already well represented in ones herbarium.

A. M. S.

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